

Climate Change, Green Energy and Recent Solar Studies Casting Doubt on Man-Made Global Warming [MMGW]

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This article began as I passed by the Hubbard Wind Farm east of Waco in Limestone county, central Texas. According to the schematic drawings there are 108 wind turbines dotting the landscape, a few of these turbines are only a few hundred yards from the highway. The [Waco Tribune-Herald reported](#) that this wind



farm cost \$330 million and is projected to supply 300 megawatts of energy. Their video states that 35,000 acres of land has been leased for the project.

It was my seventh time passing the wind farm during daylight hours before I ever saw any turbines actually working.



In my prior six times driving by this wind farm I had not seen ANY of the 100+ wind turbines working. On this seventh drive-by I could only see two turbines that were turning of the more than 50 in my eyesight. On most of these days there had been

enough wind, so maybe they had the brakes on for some reason. The last time I drove by almost ALL the turbines were working, but what led me to start doing research on this farm were my thoughts on the “true” costs of green energy. For wind turbines, part of the cost is not having enough wind – thus no electricity.

I sent my thoughts to a Manmade Global Warming [MMGW] advocate with comments about how much these turbines cost, how many tax credits are given away by the Federal and local governments to coax investment in these turbines, and cited past issues with “green” energy companies that have failed, leaving fields of “junk” turbines with nobody willing to pay the “clean up” costs at the failed attempts at “clean” energy. I concluded my message with some of the numbers for the enormous costs of using “dirty” oil/gas to manufacture, transport, install and then to maintain these turbines that are mostly made of polycarbon, a derivative of petroleum. While I collected the numbers on my own, the PragerU video to the right is excellent.

Since 2004 there has been close to \$10 trillion spent on “green energy,” yet only 29% of global energy production comes from “green” sources. The IEA [International Energy Agency] estimates that it will take another \$45T to reach the IEA goals of “a secure and sustainable energy future for all.” ¹



There are many unforeseen costs for green energy that seem to get ignored. Watch this video by “Inside Energy” titled *Who Cleans Up When a Wind Farm Retires?*

<https://www.youtube.com/watch?v=mBsuN0uFfc8>

“The Ponnequin Wind Farm straddles the border of Wyoming and Colorado. It’s scheduled to be dynamited in 2016. What will happen to the pieces? Inside Energy’s Leigh Paterson looks at what happens to wind turbines when they retire.”

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[Watch the YouTube video](#)

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My reading about “green” energy led me to question WHY we are putting so much emphasis and attention in the USA to disrupt one of the biggest drivers of our vast and dynamic economy: oil and other carbon-based energy sources. The answer is simple: MMGW – the belief that humans are putting so much CO2 in the atmosphere that we have created a “greenhouse” effect. We are told the ocean levels will rise, more devastating hurricanes and floods...basically, we are destroying the planet and the existence of humanity hangs in the balance.

[**2022-June:** Now we are seeing how our great economy can be brought to it’s knees. When we begin shutting down the oil and gas sector of our nation we are faced with \$5 to \$7 per gallon gasoline. Truckers are warning that these prices will drive many independent truckers out of business which could lead to empty shelves in our grocery stores. [President Biden admitted publicly](#) that this IS part of the plan to usher in The Green New Deal.]

As I read and looked for answers, a couple of issues related to global warming came to my attention. This information needs to be included in the public discourse as we are being pushed to embrace “green” energy. We need to think critically about these issues as we make decisions that will likely continue to damage our economy and our nation.

Coal Burning Power Plants

Coal burning power plants in the USA are developing and using "cleaner" technologies and thus are among the cleanest coal plants in the world.

[NS Energy](#), reporting from Ember's Global Electricity Review ² states that, "China, India, the US and Japan are responsible for more than three-quarters of the world’s coal-fired electricity at 6,626 TWh."



Four nations produce more than 75% of the global electricity produced by “dirty” coal-fire plants. But this is a biased presentation of the facts with the purpose of making the USA look worse than reality.

Worldwide coal fired energy

8,736 TWh – total Terrawatt Hours

4,631 TWh – China (53%)

947 TWh – India (11%)

774 TWh – USA (9%)

274 TWh – Japan (3%)

China alone represents 53% of this "carbon footprint" and has 6 times the amount of the USA footprint in this arena

[<https://www.nsenergybusiness.com/features/coal-fired-power-generating-countries/#>].

According to Daniel Gardner, *Environmental Pollution in China: What Everyone Needs to Know*, "As coal demand in the United States continues to decline, American coal companies have been looking to export more of their coal to China."

"...coal combustion...accounts for much of the country's pollution...China is the world's largest emitter of the greenhouse gas CO₂...nearly 30% of the world's emissions, and twice as much as the United States..." ³

Gardner's 2018 study is now outdated as my coal-fire numbers above show from the *Ember Report*, nonetheless he paints a very sad picture of the pollution in China. In our efforts to use "green" energy sources to cut down global CO₂, we are supporting worse CO₂ from China. I am not necessarily pushing for more coal plants in the USA, but we are living in an alternate reality if we think our 9% coal-burning footprint is going to stop manmade global warming when China accounts for 53% of the CO₂ produced by coal-burning plants. In addition, their footprint for coal plants INCREASED by 2% (93 TWh) in 2020 as the USA has been closing down coal-fire plants. This increase in China is equivalent to the USA *increasing* our coal footprint by 12%. But the strategic reality is that our coal-fire plants are among the cleanest in the world while those in China are among the worst.

The USA can completely eliminate coal and it will not make a significant dent in the urgent calls for reducing the global carbon footprint – not until China cuts their coal-burning power plants drastically. A solid percentage of China's CO₂ comes from producing consumer goods for the USA. This is not good. We have exported our manufacturing to the worst CO₂ emitter.

The Texas Freeze...

Texas had an historic freeze last winter and I endured six days without power and only a trickle of water during this freeze. The temperature never rose above freezing and thousands of us were stuck in very cold homes by an inch of solid ice followed with 4-5 inches of snow. Texas would have faired MUCH better if we had not closed five coal-fire plants in favor of solar, wind and natural gas. Prior to 2020, coal burning plants produced 20% of all Texas energy.

[<https://comptroller.texas.gov/economy/fiscal-notes/2020/august/ercot.php>]

We are fighting a losing battle trying to fast-track to “green” energy and we are doing it at the risk of damaging our economy beyond repair. In addition to hurting the economy, people will die. Over 200 people died during the Texas freeze of 2021, including many children. The wind turbines stood frozen. It was overcast for six days, so little to no solar energy was produced in much of Texas. The three coal-fire plants that had been closed within two years of the freeze would probably have kept some people alive. ⁴

Yet...global energy demand is **increasing**.

China increased their energy consumption **71%** in the last decade while India and Indonesia continue to expand their energy footprint. [Ember's, p.20]

Evidence From the Solar System

Solar scientists are offering evidence that we are heading for global cooling.

<https://notrickszone.com/2017/12/28/7-new-2017-papers-forecast-global-cooling-another-little-ice-age-will-begin-soon/>

Because I was skeptical of this website I looked on [Academia.edu](https://www.academia.edu/) for these academic papers – and found them. I downloaded these papers and read other papers authored by heliologists supporting aspects of this theory. These papers were presented at academic conferences and published in academic journals. ⁵

I looked up a few of the scholars and contacted one of them, Harald Yndestad, Professor Emeritus at Norwegian University of Science and Technology. He confirmed the veracity of these studies (more from him below).

"The movement of planets, solar activity, and global climate change are increasingly being explored. The periodicity of solar activity along with the physical mechanism of the changing of the Sun is an important topic in solar physics. Meanwhile, global climate change caused by planet movement and solar activity is an important subject in geophysics." (*Contrast Analysis Between the Trajectory of the Planetary System and the Periodicity of Solar Activity*, from the "Introduction," p.659, Wei Sun, et al., *Annales Geophysicae* Vol.35 2017)

"A period change rule of a 179.5-year cycle is observed. This period change rule is consistent with the change that takes place about once every 2 centuries (about 160 to 210 years) for solar activity and global climate change....The Sun is headed into a *grand minimum*, that is, *a period of unusually low solar activity*. A relatively low number of or nonexistent sunspots are observed during the protracted solar minimum." (Wei Sun, et al., p.667, *italics added*)

I have argued for years that the warming we are experiencing could easily be, *at least in part*, increased pockets of radiation coming from the Sun and hitting Earth. The heliologists in the above studies are presenting data that indicate the cycle of the Sun includes a "grand minimum." Their data also shows that Earth has experienced a "grand maximum" of the Sun for the last 170-200 years which has led to additional heat on Earth's surface. The data shows that we are about to enter a "grand minimum."

Rising Average Temperature

NASA estimates that the "average global temperature on Earth has increased by **at least** 1.1° Celsius (1.9° Fahrenheit) since 1880." Yet an article on *Climate.gov* states that sunspots may have contributed **at most up to** 1.8°F of warming. [6](#)

My first problem is that our leading government agencies that supposedly KNOW the most about MMGW cannot give us exact numbers. There is a reason for this: everything is based on climate *models*. These models are NOT perfect, thus we are making mission-critical changes to our robust economy based on numbers like what I just reported to you.

The *Climate.gov* article, hosted by NOAA – National Oceanic and Atmospheric Administration, titled *Couldn't the Sun be the cause of global warming?* states, "If the Sun were to intensify its energy output then, yes, it would warm our world. Indeed, sunspot data indicate there was a small increase in the amount of incoming sunlight between the late 1800s and the mid-1900s that experts estimate contributed to **at most** up...1.8°F of warming observed since the pre-industrial era."

Let's take these numbers and use a conservative risk management method. NASA is telling us that the average global temperature has increased by around 1.9°F. Let's say that the real number is 50% greater...2.8°F. NOAA is telling us that *sunspot* activity COULD be causing some of the global temperature increase. NOAA says these sunspots could be causing around 1.8°F. Let's say that the real number is 50% LESS...at 0.9°F. Using this "play it safe" risk analysis, solar activity is responsible for 32% of the increasing earth temperatures. If these kinds of numbers/risks were applied to your investments I do not think a good financial advisor would tell you to ignore a 32% risk.

The solar scientists are telling us that we are headed for *lower sunspot activity* and a global cooling period of 170-200 years. Sunspots are the additional heat source the heliologists are pointing to...and NOAA is discounting this new scientific data.

Judith Curry, former chair of the Climatology Department at Georgia Tech, had started questioning the NASA models used by her colleagues and was ostracized to such a degree that she took early retirement. She concluded that her field was no longer promoting science, but had been abducted by politics and studies funded by companies with financial interests. She resigned her academic post, but continues to do research in her field. [<https://judithcurry.com/2019/09/01/enso-predictions-based-on-solar-activity/>]

Curry states in an interview, "almost half of the warming observed in the twentieth century came about in the first half of the century, before carbon-dioxide emissions became large." Curry also says that NASA developed models that do not account for the higher temperatures in the first half of the 20th century. The models also do not account for volcanic activity and solar activity of the type being presented by the heliologists. Curry complains that the earth's climate system is intensely complicated and that her colleagues who are claiming manmade global warming are ignoring contrary evidence...thus her belief that climatology is no longer a science. Read her comments in this interview: [<https://www.city-journal.org/global-warming>]

Melting Ice Caps and Rising Ocean Levels

We are warned that human activity and CO2 levels are causing the oceans to rise and temperatures to increase. Yet it is settled science that the earth was significantly covered by glaciers for fairly long periods of time in our historic past. Then the Earth warmed enough to melt the glaciers...then it cooled again and glaciers appeared again...then it warmed and melted.

Core samples also tell us that after the major ice age periods sections of North America were covered by the Western Interior Seaway...it was not deep, but it was oceanic waters. [<https://www.cretaceousatlas.org/geology/>]

We are fighting to cut CO2 so we can keep our oceans from rising 12 inches to possibly a few feet...yet somewhere around 10,000-20,000 years ago all of Montana, Wyoming, Colorado, the Dakotas, Florida, Mississippi, Texas, Louisiana, most of Nebraska and over half of Alabama were submerged under oceanic waters.

In all my years of reading about global warming, I have never read a MMGW advocate who could adequately explain how the planet has endured such extreme climate changes when humans were very few in number (or not yet present), and why this is not likely to be natural global climate history repeating itself.

Recent Solar Science Studies

Recent studies on solar activity are very interesting. Until this recent dive into global warming, I had never heard of a solar "minimum" and "maximum." It is disappointing to me that I have never heard of this concept in any of my reading, nor in any discussion I have heard over the last 20 years on global climate change. Never much mention at all of solar cycles...at least not enough for me to know something about it. This information needs to be more well known. One study offers data showing that the orbits of planets in our solar system are slightly different during protracted solar minimums. If the orbits of our planets are affected by these solar cycles, and changes in the Sun itself can be observed, it makes sense to me that our climate would also be subject to change independent of human activity. We are, after all, part of a BIG solar system.

NASA reports that our neighboring planet Venus "might once have been a habitable ocean world, like Earth," but a "runaway greenhouse effect turned all surface water into vapor" and now the surface of Venus is "hot enough to melt lead." [<https://solarsystem.nasa.gov/planets/venus/in-depth/>] Did humans once live there and possibly ruin the planet? Or is it possible that the universe and our solar system are FAR more dynamic than we realize, and maybe just dangerous? If these changes happened on Venus without human activity, why are we so sure that the changes on Earth must be due to the presence of humans?

There are many things in our solar system that scientists are still trying to figure out such as the retrograde orbit of Venus. The orbit of our neighboring planet is actually affected by a gravitational attraction to Earth. This video, produced by VIRCI, Vortex Innovation Research Company International, discusses the retrograde orbit of Venus. [https://www.youtube.com/watch?v=42e-BN4WP_8]. VIRCI appears to advocate for MMGW. This video is fascinating to me, but also serves as an example of the complex and dynamic relationship Earth has to the other celestial objects in our solar system. VIRCI also has a video explaining how we are headed for another ice age [https://www.youtube.com/watch?v=qQo2Pp_E-4Y], yet claims that a coming ice age is not related to MMGW. This thinking is myopic and is, in great part, what led me to spend some time reading academic papers on these topics. IF the Earth has endured at least two ice ages [and then a "mini Ice Age" in Europe during the 14th-17th centuries]...with the requisite cooling and warming...how can we conclude with such certainty that human beings are causing global warming?

Using the numbers provided by NASA and NOAA, I illustrated (with simplicity I admit) how there is "at least" a 32% chance that the Sun plays a significant role in

the average global temperature changes. So there is only a 68% chance that MMGW is not significantly affected by the Sun. The man in the VIRCI video on ice ages did not even mention sunspots as a possible factor in MMGW. This is the kind of academic neglect that concerns me.

All of this led me to an interesting site, created by Prof Spencer Weart, PhD in Physics, a retired professor. Prof Weart is a MMGW advocate.

[\[https://www.carbonbrief.org/explainer-how-the-rise-and-fall-of-co2-levels-influenced-the-ice-ages\]](https://www.carbonbrief.org/explainer-how-the-rise-and-fall-of-co2-levels-influenced-the-ice-ages)

Speaking of our current "global warming," Weart's site openly proclaims, "Human emissions will delay [the] next ice age by 50,000 years..."

Professor Weart admits that we have an ice age in our future. I decided to reach out to him for some interaction. We exchanged 4-5 emails. I presented much of the data above, posing these same questions and concerns. I pointed out the issues of the coal-burning plants and how what we do seems meaningless unless China does something...quickly. I also suggested that the warming/cooling of prior ice ages prior to humans should inform us. Here are part of his responses to me:

Most of what you say seems right to me. For clarification, if there were no humans, the Earth would be very gradually getting colder as its orbit shifts, with a real Ice Age in ten thousand years or so...not much of a worry. But humans are here. When we started agriculture we began emitting CO2...this balanced the slow natural decline...Now the greenhouse gases and temp are rising faster than anytime in tens of millions of years and it is dangerous.

Some of his comments to me with respect to China sound like a version of "blame the western Europeans:"

China, yes, the biggest problem (India is second biggest, another story)...The US has a role to play here since, first, the Chinese point out that regardless of who's emitting now, the US historically is responsible for a much larger share of the CO2 currently sitting in the atmosphere, so why should they do something if we don't?

First, we **are** pushing towards green energy.

Secondly, as the Ember Report above clearly shows, China is THE leader of CO2 by a huge amount.

Thirdly, **IF** China really believed that manmade global warming was about to destroy the Earth and put humanity in jeopardy, it seems to me that they would be every bit as serious as the USA. I suspect that China does not believe in MMGW, but is happy to watch the USA spend itself into disaster over climate fears. Afterall,

they mine most of the rare minerals needed for “green” energy AND they produce most of the solar panels in use around the world.

[<https://www.forbes.com/sites/uciliawang/2014/12/03/guess-who-are-the-top-10-solar-panel-makers-in-the-world/?sh=31f00d435a5e>]

Professor Yndestad

I also made contact with Harald Yndestad, Professor Emeritus at Norwegian University of Science and Technology. ⁷ This is one of the last statements in the paper’s Abstract:

Deterministic models based on the stationary periods confirm the results through a close relation to known long solar minima since 1000 A.D. and suggest a modern maximum period from 1940 to 2015. The model computes a new Dalton-type sunspot minimum from approximately 2025 to 2050 and a new Dalton-type period TSI minimum from approximately 2040 to 2065.

Prof Yndestad’s research contains solid evidence that various forces from our solar system (mainly the sun, but also the larger planets) dictate the climate on Earth. As Yndestad stated to me in an email:

“Man has no control of climate variations.
Climate variations are controlled by the solar system.”

I emailed him and he kindly responded. We exchanged 4-5 emails. This is his personal web site: <http://www.climateclock.no/>

While I am not conversant enough to follow his data as I would like, my email exchanges and his answers to my basic, straightforward questions helped me to know that I am following the basic thrust of his research. You can read a slightly less academic version of his thinking on his website.

I will offer a basic summary.

Through advanced computer modeling of known solar radiation and better ability to chart the actual orbits of the planets around our Sun, Yndestad has been able to demonstrate a correlation between orbits of certain planets with past solar minimums. He also factors in an influence of our moon, tidal wave patterns and ocean temperatures. I *think* his starting point was to offer data on the Mini Ice Age of the 14th century, but I never directly asked him. [There is a glacier in Norway he seems to have studied a great deal that appears to have informed him about the Mini Ice Age.]

Prof. Yndestad’s position is that the climate on Earth is more influenced by factors inherent in our solar system than by anything mankind does. His data shows that

we are indeed headed for another global cooling period, something like another mini ice age. You can watch/listen to one of his presentations here:

[\[http://climateclock.no/doc/PR/EGU18%20CL%201.8%20Yndestad%205-min-Audio.mp4\]](http://climateclock.no/doc/PR/EGU18%20CL%201.8%20Yndestad%205-min-Audio.mp4)

I asked Prof. Yndestad some direct questions, requesting that he give me concise answers. He was indeed to the point.

AI B:

I have found a few man-made global warming [MMGW] scholars who seem to admit that we are heading for another ice age. One in particular warns that mankind is warming the Earth, thus forestalling the next ice age.

Question: Is this a common view of among MMGW scientists?

Yndestad:

Man has no control of climate variations.

Climate variations are controlled by the solar system.

AI B:

I have read a study by what appears to be Chinese heliologists.

Contrast analysis between the trajectory of the planetary system and the periodicity of solar activity, (2017) by Wei Sun, Jian Wang, JinRu Chen, Ying Wang, GuangMing Yu, and XianHai Xu.

They seem to be saying the same thing you are saying in some of your work.

These Chinese scientists seem to doubt MMGW.

Question: Are the Chinese scholars credible?

Yndestad:

I support the Chinese paper. There are many others, that describe the same topic.

My Conclusions

It appears that scientists on both sides of the global warming debate think we are heading for another ice age. Some MMGW advocates say human activity is delaying the next ice age. If I understand correctly, humanity is headed for likely extinction...or at least a great reduction of population. One way or another, either by global warming or a global cooling, humanity is ultimately heading for some very difficult global climate change and many living creatures will likely die from these events.

It seems dishonest for MMGW advocates to constantly push the dangers of “global warming” without any reference of a coming ice age of great significance. I would prefer that we include these scientific facts (or theories) while we scare our

children into thinking being "green" is going to save the planet. Does Greta Thunberg know that we are likely headed for another ice age?

None of the heliological papers I read were written by American scholars. For me, this is a red flag. With Judith Curry (formerly of Georgia Tech) I think the academy in the USA has become rife with politics, money and quite frankly, a lack of scholarship. The latest phenomenon of "gender studies" and the unwillingness of our newest SCOTUS justice to label homo sapiens as "male" and female" should frighten us with respect to what is coming out of our higher halls of "education." I say this to urge readers who quickly dismiss Judith Curry, Jordan Peterson, and others who are warning us about the decline in our university system – perhaps they know what they are talking about.

Green Energy

In the end, I am fine with searching for alternate energy sources. But they need to be efficient and the public should be told in clear terms about the various costs. The electric cars are fine and good, but where and how do we get the energy to recharge the batteries? How long will it be before we see battery-powered semi-tractor trailer trucks? Can you imagine what it would be like for thousands of electric cars to be stuck in a snowstorm on I-95? Or how about the evacuation disaster of Houston in 2005 with cars stuck in 95 degree weather trying to escape hurricane Rita? You can carry a 5 gallon gas can to a car, but imagine having to change a 1,200 lb. battery on the side of the interstate. Every single electric car would have to be towed in order to start it.

I commute once each month on an 800 mile trek from central Texas to south Alabama. Could an electric car make this journey in the middle of summer, on I-20 through Mississippi, Louisiana and Texas? Could an electric car make this journey as quickly and as cheaply as a gasoline powered car? How long would it take me to stop and recharge my battery? These are the kinds of questions we should be asking those who are pushing us into the "green" electric cars...

Well, Rachel Wolfe, reporter for the *Wall Street Journal* found out the answers to these questions – it takes around 8 hours to fully charge an EV.

[<https://www.wsj.com/articles/i-rented-an-electric-car-for-a-four-day-road-trip-i-spent-more-time-charging-it-than-i-did-sleeping-11654268401>] The title of her ordeal says it all: *I Rented an Electric Car for a Four-Day Road Trip. I Spent More Time Charging It Than I Did Sleeping*. In the end, would I have to settle for a tiny vehicle in order to make my 800 mile journey in a comparable timeframe to what I have now with a gas-powered car? These are "costs" we must consider.

As I see it, we will eventually have to accept a radical change of life to go “green.” Commercial air travel will not survive as we know it. An electric powered 747 does not seem to be a reality anytime soon. “We will just need to change the way we travel,” the MMGW advocate might contend. “Not everyone needs a car. Public transportation is what we need.” Sure, and we can just settle for being a second-world nation like what I experienced living in Scotland. A 25 minute car ride from St. Andrews to Dundee took me over 2.5 hours using public transport...but, “You got there, so don’t complain.” These are some of the “costs” we need to consider with alternative energy sources.

But my biggest problem is the hypocrisy of it all.

1. The USA is being pushed while China does very little...or nothing. Even if we cut our CO2 emissions in half it will not solve the problem being preached at us.

2. Why don’t we hear MMGW advocates honestly and openly admit that our planet is going to have another ice age? Why does it appear that they hide this important information while they use the fear of “global warming” to convince our children of their agenda? Just because the ice age is thousands of years away?

An average rise of even 5 degrees is not going to bring an end to the planet.

3. And what about the mega-wealthy who preach the global warming gospel as they fly around the world in private jets and live in mansions. They buy carbon credits so they can live with HUGE carbon footprints while boasting that they are living “carbon neutral.”

4. Then...more politics.

Germany, the world leader in “green” energy, has grown it’s green energy production to around 40%. But they still need 60% from fossil fuel and nuclear. Great! So Russia invades Ukraine and now Germany is dependent on oil purchased from Russia.

This is hypocrisy as well.

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The two articles below illustrate some of the struggles we have in the future with trying to wean ourselves completely off fossil fuel energy...both articles highlight the struggles of Germany, which leads the world.

Is Germany Making Too Much Renewable Energy?

The energy transition of Europe's biggest economy is running up against questions with no easy answers. <https://foreignpolicy.com/2021/02/10/is-germany-making-too-much-renewable-energy/>

Germany and the EU remain heavily dependent on imported fossil fuels

Almost 60 percent of the EU's energy needs were met by net imports in 2020. Germany's energy import dependency was still higher at 63.7 percent – a slight decrease compared to the previous year's 67 percent.

<https://www.cleanenergywire.org/factsheets/germanys-dependence-imported-fossil-fuels>
<https://www.cleanenergywire.org/factsheets/germanys-dependence-imported-fossil-fuels>

Additional Notes/Sources:

1. Global “green” costs, spending and goals:
 - <https://www.iea.org/about/mission> - International Energy Agency
 - [How Much Does It Cost to Go Green?](#) This article cites the IEA.
2. Download Ember PDF: <https://ember-climate.org/project/global-electricity-review-2021/>.
3. *Environmental Pollution in China: What Everyone Needs to Know*, Daniel Gardner (Oxford Univ Press 2018), Google Books, no page numbers, but you can search the citations and find them:
[\[https://books.google.com/books?id=RRRbDwAAQBAJ&printsec=frontcover#v=onepage&q&f=false\]](https://books.google.com/books?id=RRRbDwAAQBAJ&printsec=frontcover#v=onepage&q&f=false)
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5. *New Astronomy* 2016, European Geosciences Union (*Annales Geophysicae Open Access*), *The Journal of the Georgian Geophysical Society* 2016 – These represent the studies I downloaded. Because this is outside my field I am not familiar with these journals and may be citing them inaccurately with respect to year/volume and page numbers. Academia.edu requires an account to download papers, but you can do so up to a certain limit per month.
6. NASA estimate of “average global temperature:”
<https://earthobservatory.nasa.gov/world-of-change/global-temperatures>
Climate.gov citation: <https://www.climate.gov/news-features/climate-qa/couldnt-sun-be-cause-global-warming>
7. Prof Yndestad’s page at NTNU.edu,
<https://www.ntnu.edu/employees/harald.yndestad>. He wrote one of the heliological papers I read, “The Influence of Solar System Oscillation on the Variability of the Total Solar Irradiance” (2017). You can read the Abstract:
<https://www.sciencedirect.com/science/article/abs/pii/S1384107616300847?via%3Dihub>